

from said piezoelectric transducer to said manipulation chamber.

7. A laser system according to claim 5, further including temperature sensor means, wherein said holder contacts said manipulation chamber with a heat transfer surface having a heat transfer coefficient effective for temperature control of said manipulation chamber and defines access for said temperature sensor means to contact said manipulation chamber.

8. A laser system according to claim 5, further including temperature control means effective for heat transfer between said manipulation chamber and an outside environment.

9. A laser system according to claim 8, wherein said temperature control means includes thermoelectric elements for contacting said heat transfer surface to pump heat between said holder and said environment.

10. A laser system according to claim 9, wherein said temperature control means includes depending heat exchange fins for heat transfer between said thermoelectric elements and said environment.

11. In a laser system for optically trapping and manipulating microscopic particles with the use of a particle control chamber the improvement comprising:

a manipulation chamber having a central section defining a plurality of inlet and outlet ports for introducing fluids and said particles within said chamber, a plurality of flow channels connecting said inlet and outlet ports, and a manipulation area optically accessible by said laser system;

said manipulation area further including a first enlarged volume in selected first ones of said flow channels usable for introducing said particles, each said first volume being effective to contain a selected number of said particles, a second enlarged volume in selected second ones of said flow channels usable for controlling the distribution of said particles and said fluids in said manipulation area, each said second volume being effective for trapping a flow control air bubble, and interconnection channels for selectively interconnecting said first enlarged volumes through said second enlarged volumes.

12. A laser system according to claim 11, wherein said manipulation chamber further includes window means for sealing said central section while enabling optical access to at least said manipulation area.

13. A laser system according to claim 12, wherein said window means further includes electrode means operatively associated with said first enlarged volume for establishing an electric field within said first enlarged volume.

14. A laser system according to claim 12, wherein said window means further includes connector means in sealing registration with said inlet and outlet ports for introducing said particles and fluids within said flow channels.

15. A laser system according to claim 11, further including holder means for receiving and supporting said manipulation chamber while maintaining optical access to at least said manipulation area.

16. A laser system according to claim 15, wherein said holder further includes means for supporting a piezoelectric transducer in proximity to said manipulation chamber effective for transmitting a generated shock from said piezoelectric transducer to said manipulation chamber.

17. A laser system according to claim 15, further including temperature sensor means, wherein said holder contacts said manipulation chamber with a heat transfer surface having a heat transfer coefficient effective for temperature control of said manipulation chamber and defines access for said temperature sensor means to contact said manipulation chamber.

18. A laser system according to claim 15, further including temperature control means effective for heat transfer between said manipulation chamber and an outside environment.

19. A laser system according to claim 18, wherein said temperature control means includes thermoelectric elements for contacting said heat transfer surface to pump heat between said inner holder and said environment.

20. A laser system according to claim 19, wherein said temperature control means includes depending heat exchange fins for heat transfer between said thermoelectric elements and said environment.

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